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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/716,672

11/20/2003

Gaku Harada

8013-1155-1

7405

466 7590 03/28/2007  
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EXAMINER

YUAN, DAH WEI D

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/716,672	<b>Applicant(s)</b> HARADA ET AL.	
	<b>Examiner</b> Dah-Wei D. Yuan	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/20/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/528,711.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11202003</u> . | 6) <input type="checkbox"/> Other: ____  |

**ELECTRODE USING IMPROVED ACTIVE MATERIAL**  
**FOR BATTERY AND CAPACITOR**

Examiner: Yuan

S.N. 10/716,672

Art Unit: 1745

March 22, 2007

***Claim Objections***

1. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim: Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The acids recited in claim 4 do not all meet the limitation "having a single proton-dissociating site". Sulfuric acid, H<sub>2</sub>SO<sub>4</sub>, has two proton-dissociating sites.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

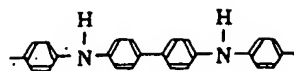
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

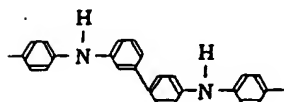
3. Claims 1-6,11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirai et al. (JP 61-206170).

With respect to claims 1,2,6,11-13,15, Hirai et al. teach the polymerization or copolymerization of diphenyl amine or triphenyl amine and their derivatives as the electrode material in a battery. The general formulae of the conductive polymer are listed as follows.

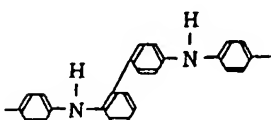
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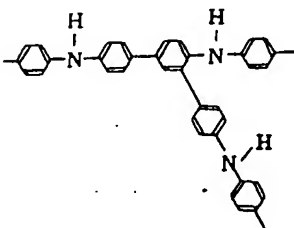
(1)



(2)



(3)



(4)

With respect to claims 3,4,5,14, Hirai et al. teach the polymer is doped with perchloric acid ( $\text{ClO}_4^-$ ). See page 353.

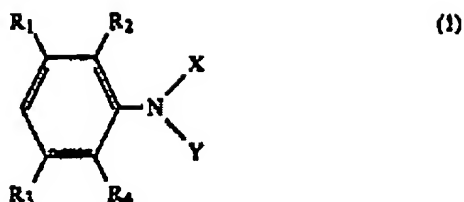
### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6,11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 4,740,436).

Kobayashi et al. disclose a non-aqueous secondary battery comprising a polymer of aniline derivative as a positive electrode. A monomer of the form



where X and Y independently represent a hydrogen atom or a phenyl group. The polymer is formed as a film and during the polymerization process is doped with acid, such as HCl. See Column 5, Lines 1-25. Furthermore, Kobayashi et al. list diphenylamine as a "typical example" of a monomer of their invention, and teach both homopolymers and copolymers are encompassed by their disclosure. Thus, one of ordinary skill in the art would recognize poly(diphenylamine) as one of a relatively small number of polymers intended to be encompassed by the Kobayashi et al. invention. Kobayashi et al. suggest that the polymers of their invention should be complexed (doped) with a protonic acid. Preferred anions of the protonic acid used for the complexing are Cl<sup>-</sup>, BF<sub>4</sub><sup>-</sup> and ClO<sub>4</sub><sup>-</sup>. Thus, Kobayashi et al. teach doping or complexing polybiphenylamine.

6. Claims 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al. (JP 61-206170) as applied to claims 1-6,11-15 and, further in view of Pienimaa et al. (US 6,110,563).

Hirai et al. disclose a conductive polymer as described above in paragraph 3. However, Hirai et al. do not teach the conductive polymer can be used as an electromagnetic shielding material. Pienimaa et al. teach an electromagnetic shielding is prepared using a conductive polymer such as polyaniline. See Column 2, Lines 1-5. Therefore, it would have been obvious to one of ordinary skill in the art to use polybiphenylaniline polymer as the electromagnetic

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shielding material, because Pienimaa et al. teach the use of a conductive polymer film as the EMI shielding material.

7. Claims 9,10,16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al. (JP 61-206170) as applied to claims 1-6,11-15 and, further in view of Kathirgamanathan et al. (US 4,992,559).

Hirai et al. disclose a conductive polymer as described above in paragraph 3. However, Hirai et al. do not teach the conductive polymer can be used as in other devices.

Kathirgamanathan et al. teach an the electroconductive polymer can have many uses, including EMI/RF shielding material, in electrochromic display systems, ant-static material, as ion and pH sensors and as battery electrode material. See Abstract. Therefore, it would have been obvious to one of ordinary skill in the art to use polybiphenylaniline polymer as the conductive polymer in various devices, because one of ordinary skill in the art would recognize that conductive polymer can be used in various applications as stated in the Kathirgamanathan reference.

8. Claims 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 4,740,436) as applied to claims 1-6,11-15 and, further in view of Pienimaa et al. (US 6,110,563).

Kobayashi et al. disclose a conductive polymer as described above in paragraph 5. However, Kobayashi et al. do not teach the conductive polymer can be used as an electromagnetic shielding material. Pienimaa et al. teach an electromagnetic shielding is

prepared using a conductive polymer such as polyaniline. See Column 2, Lines 1-5. Therefore, it would have been obvious to one of ordinary skill in the art to use polybiphenylaniline polymer as the electromagnetic shielding material, because Pienimaa et al. teach the use of a conductive polymer film as the EMI shielding material.

9. Claims 9,10,16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 4,740,436) as applied to claims 1-6,11-15 and, further in view of Kathirgamanathan et al. (US 4,992,559).

Kobayashi et al. disclose a conductive polymer as described above in paragraph 5. However, Kobayashi et al. do not teach the conductive polymer can be used as in other devices. Kathirgamanathan et al. teach an the electroconductive polymer can have many uses, including EMI/RF shielding material, in electrochromic display systems, ant-static material, as ion and pH sensors and as battery electrode material. See Abstract. Therefore, it would have been obvious to one of ordinary skill in the art to use polybiphenylaniline polymer as the conductive polymer in various devices, because one of ordinary skill in the art would recognize that conductive polymer can be used in various applications as stated in the Kathirgamanathan reference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan  
March 22, 2007

A handwritten signature in black ink, appearing to read 'Dahwei Yuan', with a stylized flourish at the end.

DAH-WEIYUAN  
PRIMARY EXAMINER